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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/628,153	07/28/2003	Christian Bonnet	Serie 6034	4378
7590	02/22/2006			
Linda K. Russell Air Liquide Suite 1800 2700 Post Oak Blvd. Houston, TX 77056			EXAMINER ELVE, MARIA ALEXANDRA	
			ART UNIT 1725	PAPER NUMBER

DATE MAILED: 02/22/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

10/628,153

Applicant(s)

BONNET ET AL.

Examiner

M. Alexandra Elve

Art Unit

1725

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on 09 January 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 18,20-39,42 and 46-51 is/are pending in the application.
- 4a) Of the above claim(s) 48,49 and 51 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 18,20-39,42,46,47 and 50 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 28 July 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

## Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
- 1) ☒ Certified copies of the priority documents have been received.
  - 2) ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - 3) ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

## Attachment(s)

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

## DETAILED ACTION

### *Claim Rejections - 35 USC § 102*

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

Claims 18, & 20-34 are rejected under 35 U.S.C. 102(b) as being anticipated by Quaas et al. (USPN 3,392,017).

Quaas et al. discloses welding which uses a copper based alloy that also contains tin (4-25%) and phosphorous (0.1-1%), the balance being copper. The copper based alloy is deposited using a variety of welding processes, such as carbon arc, oxy-fuel, tungsten inert gas, atomic hydrogen welding open arc-welding and so forth. Examples include copper tube and wire. Composition examples are: 1 to 17% copper base alloy containing 7.5% phosphorus and 22 to 69% copper base alloy containing 18% tin. The core wire can be of a metal such as, pure copper or tin bronze alloy.

Claims 39, 42 & 47 are rejected under 35 U.S.C. 102(b) as being anticipated by Davidian et al. (USPN 6,347,662).

Davidian et al. discloses a heat exchanger comprised of a plurality of plates made of copper, aluminum or stainless steel. The exchanger is made of a stack of vertical and parallel rectangular plates between which spacer corrugations that also form fins are interposed. Each pair of plates delimits a passage of flat overall shape.

Art Unit: 1725

These plates are attached using a brazing filler material. The exchanger can be used for exchanging heat between at least two fluids in an air separation unit and can be used cryogenically.

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 35-38 & 50 are rejected under 35 U.S.C. 103(a) as being unpatentable over Quaas et al. as stated in the above paragraph and further in view of Davidian et al.

Quaas et al. does not teach forming a heat exchanger in the arc welding process. Davidian et al. discloses a heat exchanger comprised of a plurality of plates made of copper, aluminum or stainless steel. The exchanger is made of a stack of vertical and parallel rectangular plates between which spacer corrugations that also form fins are interposed. Each pair of plates delimits a passage of flat overall shape. These plates are attached using a brazing filler material. The exchanger can be used for exchanging heat between at least two fluids in an air separation unit and can be used cryogenically.

Art Unit: 1725

It would have been obvious to one of ordinary skill in the art at the time of the invention to direct the welding process, as taught by Quaas et al. to the Davidian et al. heat exchanger because this is merely an application of the arc welding process.

Claim 46 is rejected under 35 U.S.C. 103(a) as being unpatentable over Davidian et al. as stated in the above paragraph and further in view of Quaas et al.

Davidian et al. does not teach the use of copper/tin braze. Quaas et al. discloses welding which uses a copper based alloy that also contains tin (4-25%) and phosphorous (0.1-1%), the balance being copper. The copper based alloy is deposited using a variety of welding processes, such as carbon arc, oxy-fuel, tungsten inert gas, atomic hydrogen welding open arc-welding and so forth. Examples include copper tube and wire. It would have been obvious to one of ordinary skill in the art at the time of the invention to use a Cu-Sn-P brazing filler material as taught by Quaas et al. in the Davidian et al. heat exchanger production because it is merely a variation of an already required brazing component.

### ***Response to Arguments***

Applicant's arguments with respect to claims have been considered but are moot in view of the new ground(s) of rejection.


***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to M. Alexandra Elve whose telephone number is 571-272-1173. The examiner can normally be reached on 6:30-3:00 Monday to Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Patrick Ryan can be reached on 5710272-1292. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

February 18, 2006.



M. Alexandra Elve  
Primary Examiner 1725